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Goddard Space Flight Center

Inside Wallops

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NASA Sounding Rocket Payloads to Examine Comet Hale-Bopp

As Comet Hale-Bopp nears the Sun in late March, scientists using NASA sounding rockets hope to gather data that will shed light on the origin of the comet and the early composition of the universe.

The Navy at the White Sands Missile Range, NM, will launch four suborbital sounding rockets March 24 through April 5 for the Wallops Flight Facility. The payloads will observe the comet in the ultraviolet wavelengths of light.

Comets are believed to be composed of ice, dust and frozen gases originating from the formation of the solar system. Comet Hale-Bopp is expected to provide Earth observers with a brilliant show as it passes 85 million miles from the Sun. Hale-Bopp will reach perihelion, the closest approach to the Sun, on March 31.

The experiments, which will be launched shortly after sunset, are being provided by the University of Colorado, Boulder; University of Wisconsin, Madison; Southwest Research Institute (SwRI), San Antonio, TX; and Johns Hopkins University (JHU), Baltimore.

The four payloads will be launched on two-stage Black Brant IX sounding rockets to altitudes from 175 to 240 miles. Using star tracking systems, the payloads will be oriented to point at the comet and provide researchers with five minutes of observations. The payloads will be recovered following a parachute descent at White Sands.

The four Comet Hale-Bopp experiments will not only complement each other in their measurements, but also complement data gathered by ground based instruments and orbiting observatories such as the Hubble Space Telescope (HST), according to Paul Feldman, principal investigator for the JHU payload.

The HST will not observe Hale-Bopp at perihelion because the comet is lost in the glare of the Sun. HST did view the comet at various times from October 1995 to October 1996 and will again make observations in August and September 1997, Feldman said.

Observations from the sounding rocket payloads, all which have successfully flown before looking at other astronomical targets, will be taken in the ultraviolet, far-ultraviolet, and near-ultraviolet spectrum. These observations cannot be taken using ground-based instruments and some of the measurements may be the first of a comet, said Jim Green, the experimenter from Colorado.

The complement of payloads will look at the coma (the area surrounding the nucleus) and the tail to measure carbon concentrations; gas emissions such as argon, neon, hydrogen, oxygen, and carbon monoxide; and dust particles.

Alan Stern, SwRI scientist, said no one has seen the noble gases argon and neon before in a comet. If found, they will shed light on the origin of the comet.

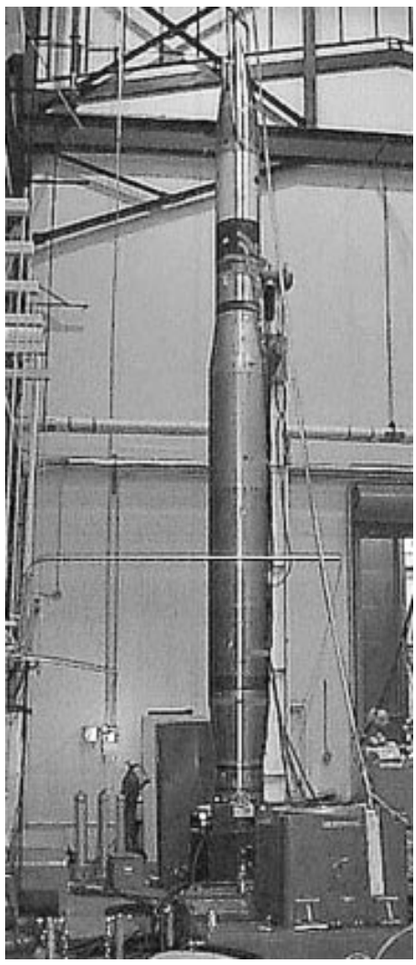
Measurements of dust particles will provide information on the composition of the dust and its possible relationship to interstellar dust, minute particles in space that are found between stars, said Walt Harris, principal investigator from Wisconsin. This can give the researchers a snapshot of what existed when the solar system was formed, he said.

The flights have other value besides the immediate science results. Stern noted that his payload instrument is a precursor to one being developed to fly on a NASA comet mission in 2003 called Rosetta. Also, a ground instrument being used during his sounding rocket flight is slated to fly on Space Shuttle mission STS-85 in July 1997 to image the comet.

Feldman added, that these missions, as do all sounding rocket missions, provide end-to-end training for graduate students. Within a relatively short period, one to two years, a student can conceive an experiment and have it carried out.

Further information on these sounding rocket missions to examine Comet Hale-Bopp can be found on the Internet at: http://www.wff.nasa.gov/~web/comet.html

Monthly Morning Coffee - March 19 Cafeteria 8 to 9 a.m.



The first of four sounding rocket payloads to examine Comet Hale-Bopp undergoes testing at the White Sands Missile Range. Hale-Bopp is expected to provide an unprecedented opportunity to study these celestial ice-balls that may shed light on the early composition of the universe. The White Sands launches are scheduled March 24 through April 5.

Aurora Mission Successful

A NASA sounding rocket mission to study the physics of pulsating auroras was successfully completed March 13 from the Poker Flat Research Range, AK.

The two-stage Black Brant IX rocket carried the Pulsation Rocket Experiment payload to an altitude of 239 miles. Pulsations consist of irregularly shaped patches which appear to switch on and off.

The mission did not include payload recovery. The principal investigator was George Parks, University of Washington, Seattle, and the project manager was Bonnie Maxfield (Code 832).

Weather Summary

by Ted Wilz, Senior Meteorologist

No one would ever guess that February is usually the second coldest month of the year on the Eastern Shore. The mild winter temperatures continued with the average for February six degrees above normal. A new record high of 67 degrees was set on February 19, and the record high of 70 degrees was tied on February 22. Brisk, southwesterly winds of 42 mph drove the mercury to 79 degrees on February 27, eclipsing the previous record high by eight degrees and setting an all-time high for February.

February also was wetter than normal. Rainfall measured 3.20 inches, which is slightly (.2 inches) above the monthly average. The only snow recorded was .3 inch on February 8, well below the average for the month of 3.6 inch.

With a winter like we've had, Spring has to be just around the corner. March 21 is the first official day of Spring, but by April the season is usually here in earnest. April is usually the driest month of the year in Eastern Virginia. Rainfall averages are only 2.64 inches with usually 10 days of measurable precipitation and two or three days during the month with a thunderstorm.

Temperatures should warm up nicely. Highs will average in the mid-60's by the end of the month. The record high for April is 93 degrees and was recorded on April 26, 1990. After this past winter, we just might break the April high. The average lows are near 40 degrees at the beginning of the month and approach the upper 40's by the end of the month. It is not unusual for the temperature to dip to the freezing mark for a few nights. Think about waiting until early May to plant that tomato crop.

Library News

The new on-line Library catalog can be accessed from the Internet at: http://stilas.larc.nasa.gov Once in, open box, select WALIB and click START. You can now search the entire book collection and place requests on-line. When placing requests, make sure to put your name in the notes field. For more information, contact, Sam Hall on x1065.

Due to recent policy changes, all patrons with valid Library Cards are now eligible for Interlibrary Loans.

We hope to hear from you !!!

The Wallops Federal Women's Program Committee Proudly Presents Wallops Profile--

Sharon Burke

I am a network administrator for Computer Sciences Corporation (CSC) and support networking needs at NASA, Wallops Flight Facility. Specifically, I am responsible for the configuration of the Microsoft NT servers. This entails providing upgrades in hardware and software and coordinating upgrades with local administrators. I also provide support to administrators for the numerous Microsoft Windows 3.11, 95 and NT, MAC workstations.

I really enjoy my work. The local administrators and users are great to work with. My job allows me to keep up with the latest technology on the desktop, both hardware and software. I am involved in the procurement of desktop workstations and peripherals that will be used with the network. Recently, I have been working with Goddard Space Flight Center's network support group in conjunction with the new agency wide NT strategy plan. I really think this is a step forward for the agency. Providing consistency throughout the agency in the network area will provide a better environment for sharing resources.

I have worked for CSC for 17 years at Wallops. I received a BA degree in English in 1978 and was hired as a computer aid in October of 1979. This job involved helping archive tapes and printouts used with mainframe computers. In 1981, I changed positions and became involved in technical writing, updating handbooks and editing programmer's software documentation. During this time, our section started providing users with PC workstations. Susan Semancik, NASA technical advisor was in charge of this area, and I became her assistant. Susan was a great teacher, very methodical and knowledgeable. When Susan moved to the mini workstation environment, I became the lead with PCs. I started from the beginning with XT PCs using DOS 3.1. This was the same with networking software. I started with 3COM 3Plus, a very basic networking package.

I enjoy dining out, attending fine art festivals and participating in my children's activities. I have a 15 year old daughter, Kelly, and stepson, Michael Burke, who is 10. I have served as Cultural Arts Coordinator at Chincoteague Elementary, Girl Scout co-leader, active member of the band boosters, and attended many little league and field hockey games. I could not do this without my husband's help at home. I think it is extremely important to be involved with your children, especially if you are a working parent.

The computer area is full of career opportunities for women. In networking there are employees dedicated to the support, design and configuration of the physical network. Usually these positions are filled by computer engineers. Technicians are in charge of installing fiber, etc. On the software side there are employees that focus on the servers and others on the support of end users. Networking is just one of many computer areas. I would recommend obtaining a degree in Management Information Systems or Computer Information Systems (CIS). I am planning to do graduate work in the CIS field.

Wallops homepage is online @ http://www.wff.nasa.gov

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